

ABSTRACT

A lightweight, energy-absorbing, flexible vehicle wheel (12) constructed from an injection molded engineered polymer, such as, for example, a toughened nylon reinforced with carbon fibers, glass fibers, or kevlar fibers, wherein the wheel (12) may be embodied in either modular or one-piece construction. In a modular embodiment, the wheel (12) comprises broadly comprises an inboard wheel half (14); an outboard wheel half (16); a center section (18); a bead lock ring (20); and a removable mud plug (22). Stiffening ribs (38,54,55) and varying cross-sectional thicknesses are provided in the inboard and outboard wheel halves (14,16) for controlling stiffness; gaskets (70), O-rings (71), or dynamic u-cup seals (73) are provided for sealing contact surfaces (40,44,64,66); and an interlocking alignment mechanism (62,82) is provided for aligning the bead ring (20) on the outboard wheel half (16).